

## Summary

A continuous vapor-phase fluidized-bed process for the preparation of ethylene homopolymers and copolymers having a density of from 0.87 to 0.97 g/cm<sup>3</sup> in which  
5 ethylene or mixtures of ethylene and C<sub>3</sub>-C<sub>8</sub> α-monoolefins are (co)polymerized in the presence of a supported chromium catalyst in the polymerization zone of a vapor-phase fluidized-bed reactor under pressures ranging from 1 to 100 bar and at temperatures ranging from 30° to 125°C in the vapor phase in an agitated bed of bulk material comprising particulate polymer, the resultant heat of polymerization is re-  
10 moved by cooling the recirculated reactor gas and the resulting (co)polymer is removed from the vapor-phase fluidized-bed reactor, wherein, for the preparation of a (co)polymer of a specific density d, the (co)polymerization is carried out at a temperature which is in a range restricted by an upper envelope defined by equation I

$$15 \quad T_H = 171 + \frac{6d'}{0.84 - d'} \quad (I)$$

and a lower envelope defined by equation II

$$20 \quad T_L = 173 + \frac{7.3d'}{0.837 - d'} \quad (II),$$

25 in which the variables have the following meanings:

$T_H$  is the highest reaction temperature in °C;

$T_L$  is the lowest reaction temperature in °C;

$d'$  is the numerical value of the density d of the (co)polymer to be synthesized.

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